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REMARKS

Claims 1 – 7, 9 – 17 and 37 - 53 are pending in the present Application. Claims 1, 42, and 53 have been amended; no claims have been added or cancelled, leaving Claims 1 – 7, 9 – 17 and 37 - 53 for consideration upon entry of the present Amendment. No new matter has been introduced by these amendments. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Amendments

Claim 1 has been amended to include “and wherein the thermoplastic polymer is unreactive”. Support for this amendment can at least be found in paragraph [0045] of the Specification as originally filed.

Claim 42 has been amended to include “onto a substrate”. Support for this amendment can at least be found in paragraph [0020] of the Specification as originally filed.

Claim 53 has been amended to include “onto a substrate” and “wherein the thermoplastic polymer is a resin selected from the group consisting of polyetherimides, polysulfones, polyethersulfones, polycarbonates, polyester carbonates, polyphenylene ethers, polyarylates, and combinations comprising at least one of the foregoing resins”. Support for this amendment can at least be found in paragraph [0043] of the Specification and Claim 7 as originally filed.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1, 7, 9 – 11, 14 – 17, 38, and 51 – 53 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 5,916,632 to Mishina, et al (hereinafter “Mishina”). Applicants respectfully traverse this rejection.

Mishina generally teaches a polyimide varnish that is a solution having a polyimide and/or a polyimide precursor dissolved in an organic solvent.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

Independent Claim 1, as amended, is directed to a spin coating process comprising dispensing a solution of a solution solvent and about 3 to about 30 wt% thermoplastic polymer, based upon the total weight of the solution, onto a substrate, ... wherein the solution solvent consists of a material selected from the group consisting of aryl acetates and C₄ – C₁₀ alkyl acetates, C₂-C₆ alkyl

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carbonates, formamides, C₁-C₆ N-alkyl formamides, C₁-C₆ alkyl sulfoxides, methoxy ethyl acetate, C₁-C₆ N-alkyl pyrrolidones, phenols, C₁-C₆ alkyl phenols, aryl ethers, C₁-C₆ alky aryl ethers, C₁-C₆ alkyl ureas, C₄-C₆ sulfolanes, N-acetyl cyclic ethers, C₁-C₆ alky acetamides, C₁-C₆ alkyl phosphoramides, C₃-C₆ lactones, aryl alkyl ketones, and miscible combinations comprising at least one of the foregoing materials; and wherein the thermoplastic polymer is unreactive; spinning the substrate; and removing the solution solvent to produce a coated substrate comprising a coating having less than or equal to 10 asperities over the entire surface of the coated substrate.

Independent Claim 53 as amended is directed to a spin coating process, comprising dispensing a solution of a solution solvent and about 3 to about 30 wt% thermoplastic polymer, based upon the total weight of the solution, onto a substrate, ... and wherein the thermoplastic polymer is a resin selected from the group consisting of polyetherimides, polysulfones, polyethersulfones, polycarbonates, polyester carbonates, polyphenylene ethers, polyarylates, and combinations comprising at least one of the foregoing resins; spinning the substrate; and removing the solution solvent to produce a coated substrate comprising a coating having less than or equal to 10 asperities over the entire surface of the coated substrate.

Mishina fails to anticipate independent Claims 1 and 53 as this reference does not teach each and every element of the instant claims. In particular, this reference fails to teach the production of a coated substrate comprising a coating having less than or equal to 10 asperities over the entire surface of the coated substrate.

As taught by the instant Specification, spin coated data storage media have stringent surface quality requirements such as having low asperities (paragraph [0019]). An asperity refers to any undesired surface feature which projects above the top surface of the media (paragraph [0019]), including irregularities and cissing. Instant Claims 1 and 53 require the coated substrate to have a coating having less than or equal to 10 asperities over the entire surface of the coated substrate, a stringent requirement. Mishina fails to teach this element.

The Examiner alleged that the process steps and materials of Mishina in Column 6, lines 1-12 are materially similar to the claimed process and thus the results obtained by applicants process must necessarily be the same as those obtained by Mishina (Office Action dated 1/17/2006, page 3). Applicants respectfully disagree.

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The process and material disclosed by Mishina include adding NMP to the polyimide precursor solution to obtain a varnish, which was spin-coated on a glass substrate at a rotational speed of 2,000 rpm, followed by drying and curing to obtain a polyimide coating film having a thickness of about 3,000 Å (Col. 6, lines 1 – 12). However, as admitted by Mishina, the obtained coating film from this process had fine irregularities and crissing (Col. 6, lines 1 – 12). The coatings prepared according to the processes of claims 1 and 53 have minimal levels of asperities.

Similarly, the process disclosed in Comparative Examples 2 and 3 by Mishina produce coating films having fine irregularities and crissing and “it was impossible to obtain a smooth film” (Col. 6, lines 14 – 39). Thus, the Mishina’s process is different from the instantly claimed process, as the Mishina coating has irregularities and crissing that does not meet the instant claim requirements of less than 10 asperities over the entire surface of the coated substrate.

The processes and materials in Examples 1, 2, and 4 of Mishina also do not anticipate the instant claims as these processes use different solution solvents than the instantly claimed ones. For example, Mishina uses a different solvent 1-butoxy-2-propanol in addition to NMP in Example 1 to obtain a smooth coating film (Col. 5, lines 1 – 18). As Claims 1 and 53 require “wherein the solution solvent consists of a material selected from ...” (emphasis added) and 1-butoxy-2-propanol is not one of the listed solvents, the process in Example 1 does not teach the instantly claimed method. The same is true with Examples 2 and 4.

Notwithstanding, regarding instant Claim 1, Mishina also fails to teach a spin coating process “wherein the thermoplastic polymer is unreactive”. The coating process disclosed by Mishina uses polyimide precursor solutions and involves curing reactions to obtain a polyimide coating (Col. 6, lines 1 – 39). It is noted that Mishina teaches printing polyimide, it does not, however, show polyimide polymer spin coated. (See, Col. 5, Example 2 and col. 6, Example 4) As Mishina does not teach using unreactive polymers in a spin coating process to obtain a coating, this reference fails to teach each and every element of instant Claim 1. Thus Mishina does not anticipate Claim 1 or dependent Claims 7, 9-11, 14-17, 38, and 51-52.

With regard to instant Claim 53, Mishina fails to teach the particular polymers of the instant claim. Mishina teaches using polyimide precursor solutions that are spin coated and cured to obtain polyimide coatings. However, this reference does not teach any of the particular polymers of Claim

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53 "wherein the thermoplastic polymer is a resin selected from the group consisting of polyetherimides, polysulfones, polyethersulfones, polycarbonates, polyester carbonates, polyphenylene ethers, polyarylates, and combinations comprising at least one of the foregoing resins". Thus Mishina does not anticipate Claim 53.

Therefore, reconsideration and withdrawal of the 102(b) rejections over independent Claims 1 and 53 and dependent Claims 7, 9-11, 14-17, 38, and 51-52 are respectfully requested.

Claims 1, 7, 9 - 11, 14 - 17, 38 and 51 - 53 stand rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 5,177,181 to Rosenfeld, et al. (hereinafter "Rosenfeld"). Applicants respectfully traverse this rejection.

Rosenfeld generally discloses an aromatic diamine and methods of making photosensitive polyamic acids and polyimides from the aromatic diamines, which can be crosslinked with light (abstract). In particular, this reference discloses that certain solvents including NMP and dimethyl formamide can be used to prepare polyamic acids and a polyimide coating can be made from a solution of the polyamic acids (Column 6, lines 20-38; Column 11, line 35 to Column 12, line 68).

However, Rosenfeld fails to teach each and every element of the instant Claims 1 and 53 as amended. In particular, regarding Claim 1, Rosenfeld fails to teach "wherein the thermoplastic polymer is unreactive."

Rosenfeld teaches that a polyimide coating can be made from a solution of photosensitive polyamic acid or polyimide in a solution solvent such as NMP (Column 11, line 39- Column 12, line 68; abstract). However, the polymer in the polymer solution for spin coating (i.e. polyamic acid or polyimide) is reactive as it contains crosslinkable groups derived from crosslinkable diamines. (Column 1, lines 41-50). Indeed, intermolecular crosslinking is achieved. (Column 1, lines 51-57). Rosenfeld teaches that "up to 40 wt % of the diamine used may be non-crosslinkable diamine. . . preferably the non-crosslinkable diamine is present in small amounts or is not used". (Column 7, lines 40-45) As Rosenfeld does not teach a spin coating process wherein the polymer is unreactive as required by instant Claim 1, this reference does not anticipate Claim 1 or its dependent Claims 7, 9 - 11, 14 - 17, 38 and 51 - 52.

Rosenfeld also fails to teach each and every element of Claim 53 as this reference does not teach or suggest the particular polymers of instant Claim 53. Rosenfeld teaches spin coating a

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polymer wherein the polymer is a polyamic acid or polyimide (Column 11, lines 54-58; Column 12, lines 42-48). However, it does not teach any of the particular polymers of instant Claim 53 "wherein the thermoplastic polymer is a resin selected from the group consisting of polyetherimides, polysulfones, polyethersulfones, polycarbonates, polyester carbonates, polyphenylene ethers, polyarylates, and combinations comprising at least one of the foregoing resins". Therefore, reconsideration and withdrawal of this 102(b) rejection are respectfully requested.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 2 – 6, 12 – 13, 37, 42 – 44 and 47 – 48 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 5,177,181 to Rosenfeld, et al. Applicants respectfully traverse this rejection.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Instant Claims 2 – 6, 12 – 13, 37, 42 – 44 and 47 – 48 are not obvious over Rosenfeld since this reference does not teach all elements of the instant claims. As presented above, Rosenfeld teaches spins coating processes using reactive polymers. However, it fails to teach a spin coating process "wherein the thermoplastic polymer is unreactive" as is required by independent Claim 1. Thus, dependent Claims 2 – 6, 12 – 13, 37, 42 – 44 and 47 – 48, which all depend from independent Claim 1, have not been rendered obvious over Rosenfeld.

Furthermore, a skilled artisan would not be motivated to spin coat an unreactive polyimide polymer as Rosenfeld teaches the necessity of using the reactive polymers for dielectric coatings, where the reactive polymers are capable of forming high-resolution patterns upon crosslinking. (Col. 1, lines 47-50) There is no suggestion within the reference to use a polyimide that cannot be

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crosslinked since Rosenfeld's objective is for forming a patterned surface by photolithography. (Col. 2, line 66 to col. 3, line 11) Thus, dependent Claims 2 – 6, 12 – 13, 37, 42 – 44 and 47 – 48, which all depend from independent Claim 1, have not been rendered obvious over Rosenfeld. Therefore, reconsideration and withdrawal of this 103(a) rejection are respectfully requested.

Claims 45 – 46 and 49 - 50 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over U.S. Patent No. 6,715,200 to Feist, et al. (hereinafter "Feist") in view of Rosenfeld. Applicants respectfully traverse this rejection.

Applicants respectfully point out that Feist would only be art under 35 U.S.C. §102(e) as its effective filing date is April 19, 2001, yet its publication date of February 21, 2002 is after the priority date of the instant application (April 19, 2001). According to MPEP 706.02(1)(1), effective November 29, 1999, subject matter which was prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(e) is now disqualified as prior art against the claimed invention if that subject matter and the claimed invention "were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person." Feist and the instant application were commonly owned or subject to an obligation of assignment to General Electric Company at the time the invention of the instant application was made. Thus, Applicants respectfully request removal of Feist as a 103 reference.

Since instant Claim 1 is not obvious over Rosenfeld alone for reasons presented above, dependent Claims 45 – 46 and 49 – 50 are also not obvious over this reference. Applicants respectfully request withdrawal of this 35 U.S.C. 103(a) rejection.

Claim 39 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Rosenfeld in view of Feist, and further in view of U.S. Patent No. 5,055,631 to Sartori, et al. (hereinafter "Sartori"). Applicants respectfully traverse this rejection.

As presented above, Feist is now disqualified as a 103 reference. Instant Claim 39 is not obvious over Rosenfeld in view of Sartori since these two references do not teach all elements of Claim 39, which ultimately depends from independent Claim 1. As presented above, Rosenfeld fails to teach a spin coating process "wherein the thermoplastic polymer is unreactive" as required by Claim 1.

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Sartori generally discloses a method for separating mixtures of aromatics and non-aromatics by permeation through a sulfonated polysulfone membrane which is selective for aromatics. However, this reference does not cure the deficiency of Rosenfeld since Sartori also does not teach a spin coating process. Thus, instant Claim 39, which depends from independent Claim 1, is not obvious over Rosenfeld in view of Sartori.

Applicants respectfully request withdrawal of this 35 U.S.C. 103(a) rejection.

Claim 40 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Rosenfeld in view of Feist and further in view of Japanese Patent No. 02-288021, Abstract, (Derwent Account No. 1991-017337) to Kageyama, et al. (hereinafter "Kageyama"). Applicants respectfully traverse this rejection.

As presented above, Feist is now disqualified as a 103 prior art. Instant Claim 40 is not obvious over Rosenfeld in view of Kageyama as these references do not teach all elements of the instant claims.

As presented above, Rosenfeld fails to teach a spin coating process "wherein the thermoplastic polymer is unreactive" as required by Claim 1, which claim 40 ultimately depends from.

Kageyama generally discloses a heat resistant self-fusible enamel wire. However, this reference does not cure the deficiency of Rosenfeld since Kageyama also fails to teach a spin coating process "wherein the thermoplastic polymer is unreactive" of the instant Claim 1. Thus, Rosenfeld and Kageyama fail to teach each and every element of the instant Claim 1. Claim 40, which depends from independent Claim 1, is also not rendered obvious over these references.

Applicants respectfully request withdrawal of this 35 U.S.C. 103(a) rejection.

Claim 41 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Rosenfeld in view of Feist and further in view of U.S. Patent No. 5,589,523 to Sawaoka, et al. (hereinafter "Sawaoka") and U.S. Patent No. 4,842,740 to Chung, et al. (hereinafter "Chung"). Applicants respectfully traverse this rejection.

As presented above, Feist is now disqualified as a 103 prior art. Instant Claim 41 is not obvious over Rosenfeld in view of Sawaoka and Chung for the following reasons.

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Sawaoka generally discloses a microcapsule curing agent including (A) a curing agent for a thermosetting resin and (B) a thermoplastic resin (abstract). Chung generally discloses novel membranes comprised of a blend of polyarylate and polybenzimidazole polymers (abstract).

Rosenfeld teaches spin coating crosslinkable (reactive) polyimide or polyamic acids. It does not teach or suggest the use of unreactive thermoplastic polymers required by Claim 41. There would be no motivation derived from Rosenfeld to spin coat unreactive polymers such as those found in Sawaoka nor Chung. Furthermore, there is no motivation or expectation of success to use the solvents of Chung to form a solution of the polymers of Sawaoka in a spin coating process to form a coated substrate comprising a coating having less than or equal to 10 asperities over the entire surface of the coated substrate. Thus, the Applicants respectfully request withdrawal of this 35 U.S.C. 103(a) rejection.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and withdrawal of the objection(s) and rejection(s) and allowance of the case are respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 50-1131.

Respectfully submitted,

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